

Amendment and Response

Serial No.: 09/893,199

Filed: June 27, 2001

Docket No.: 10277US01/1201.183.101

IN THE CLAIMS

Claims 1-25 (Canceled)

26. (Currently Amended) A photopolymer data recording media for holographic imaging and data storage, comprising:

- (a) a substrate layer;
- (b) a capping layer; and
- (c) a photopolymerizable layer between the substrate layer and the capping layer, wherein the photopolymerizable layer comprises a photopolymerizable material including at least:
 - (1) an actinic monomer,
 - (2) a polyurethane matrix comprising the reaction product of:
 - (A) an aliphatic polyisocyanate comprising a dimer or trimer of 1,6 hexamethylene diisocyanate and having a viscosity of less than about 1,000 mPa·s, and
 - (B) a polyol, and
 - (3) a photosensitive initiator,

wherein [said photopolymerizable layer has a solidification time] at least about 70% of isocyanate groups present in said aliphatic polyisocyanate are reacted in about 12 minutes.

27. (Currently Amended) A photopolymer data recording media for holographic imaging and data storage according to claim 26 wherein said [photopolymerizable layer has a solidification time of] at least about 70% of isocyanate groups present in said aliphatic polyisocyanate are reacted in less than about 8 minutes.

28. (Currently Amended) A photopolymer data recording media for holographic imaging and data storage according to claim 26 wherein said polyol is selected from the group consisting of

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ethylene glycol, dimethylene glycol, pentanediol, [trimethylolpropaner] trimethylolpropane, pentaerythritol, 1,3-propanediol, glycidyl ethers, glycerol and glycerol propoxylate.

29. (Previously Presented) A photopolymer data recording media for holographic imaging and data storage according to claim 26 wherein said polyol is glycerol propoxylate.

30. (Previously Presented) A photopolymer data recording media for holographic imaging and data storage according to claim 26 wherein the substrate and capping layer are individually comprised of glass or plastic which is transparent to that electromagnetic radiation to which the photopolymerizable material is sensitive.

31. (Previously Presented) The photopolymer data recording media of claim 26 wherein the polyol has a viscosity of about 1,000 to 5,000 cps.

32. (Previously Presented) The photopolymer data recording media of claim 26 wherein the photopolymerizable material includes at least:

- (a) about 3 to 5 wt% actinic monomer;
- (b) about 95 to 97 wt% polyurethane matrix; and
- (c) an effective amount of photosensitive initiator.

33. (Currently Amended) A method for holographically imaging a photopolymer data recording media, comprising:

- (a) obtaining a photopolymer data recording media, including at least:
 - (1) a substrate layer;
 - (2) a capping layer; and
 - (3) a photopolymerizable layer between the substrate layer and the capping layer, the photopolymerizable layer comprising a photopolymerizable material including at least:
 - (A) an actinic monomer,
 - (B) a polyurethane matrix comprising the reaction product of:

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- (i) an aliphatic polyisocyanate comprising a dimer or trimer of 1,6 hexamethylene diisocyanate and having a viscosity of less than about 1,000 mPa·s, and
 - (ii) a polyol, [said photopolymerizable layer having a solidification time of less than] wherein at least about 70% of isocyanate groups present in said aliphatic polyisocyanate are reacted within about twelve minutes and
- (4) a photosensitive initiator,
- (b) creating an interference pattern by interfering a data beam and a reference beam, wherein the data beam contains an information pattern and the data beam and reference beam are comprised of electromagnetic radiation to which the photopolymerizable material is sensitive; and
- (c) recording the interference pattern on the photopolymer data recording media in a pattern representative of the information pattern by exposing the photopolymerizable material to the interference pattern for a time sufficient to effect photo polymerization of the photopolymerizable material.

34. (Currently Amended) The method of claim 33 wherein said [photopolymerizable layer has a solidification time of less than] at least about 70% of isocyanate groups present in said aliphatic polyisocyanate are reacted within about 8 minutes.

35. (Currently Amended) The method of claim 33 wherein the polyol is selected from the group consisting of ethylene glycol, dimethylene glycol, pentanediol, [trimethylolpropaner] trimethylolpropane, pentaerythritol, 1,3-propanediol, glycidyl ethers, glycerol and glycerol propoxylate.

36. (Previously Presented) The method of claim 33 wherein the substrate layer and capping layer are individually comprised of glass or plastic which is transparent to that electromagnetic radiation to which the photopolymerizable material is sensitive.

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37. (Previously Presented) The method of claim 33 wherein the photopolymerizable material includes at least:

- (a) about 3 to 5 wt% actinic monomer
- (b) about 95 to 97 wt% polyurethane matrix; and
- (c) an effective amount of photosensitive initiator.

38. (Previously Presented) The method of claim 33 wherein the substrate layer and capping layer are individually comprised of glass or plastic which is transparent to that electromagnetic radiation to which the photopolymerizable material is sensitive.